



Patent Application of
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for
BACKPACK WITH
RETRACTABLE SHOULDER STRAPS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to the field of backpacks and particularly to small frameless packs with waist encircling belts.

2. Description of the Prior Art

Small frameless backpacks or so called "day packs" have become widely popular with the general populace, and particularly with students and hikers, for carrying small loads. However, almost without exception these small packs lack any sort of load supporting waist encircling belt to help spread the load. This results in undue strain on the neck and shoulders. Additionally, when these day packs are used for active sports such as hiking or cycling, and because they are generally frameless and lie directly in contact with the wearer's back, they trap perspiration causing the wear's back to become wet and uncomfortable. Also, these day packs tend to restrict the wearer's range of motion in the upper body when executing sudden or difficult maneuvers. More recently small, waist-encircling day packs without shoulder encircling straps, so called "fanny-packs" have gained in popularity due to their generally smaller size and less

encumbering design. While these fanny-packs offer greater freedom of movement, and avoid the perspiration problem they are less than ideal for carrying the heavier loads typical of day hiking. When heavily loaded the single waist encircling belt puts undue stress on the lumbar region and the abdomen because the belt must be tightly cinched so that the bag doesn't slip down or tilt backwards. When engaged in vigorous exercise such as running these fanny-packs also tend to bounce up and down and slip around to the front. This problem can be partially minimized by tightly cinching the waist belt, but additional strain is then put on the lumbar and abdomen.

I have developed a pack that retains the qualities which have made fanny-packs popular, namely their light compact design, but which eliminates the stress on the lumbar and abdomen by incorporating into the design a set of retractable shoulder straps which can be selectively employed or stowed by the user depending on the load being carried. This shoulder strap design also incorporates a piece of elastic webbing at one end which provides the dual function of a less restricted range of upper-body motion, while also acting as a shock absorber for the packs up and down bouncing experienced during vigorous exercise. Because the straps attach to the outside rear panel of the pack (unlike conventional pack designs which attach to the front panel) they not only serve to lift the pack up, but also to hold the pack securely in to the body such that it always maintains the same center of gravity as the body. During certain sports such as alpine skiing or rock climbing this feature is particularly important and desirable.

SUMMARY OF THE INVENTION

Briefly described, the invention disclosed herein comprises a unique backpack frameless or otherwise which is characterized by a waist-encircling belt and a discreet pocket on the pack which contains a set of shoulder straps or suspenders that are attached to the pack on one end and have clips on the other end allowing the shoulder straps to be easily pulled out of their discreet pocket, passed over the wearer's shoulders, and attached to the front panel of the bag. Conversely, when the load being carried does not require the additional support afforded by the shoulder straps they can be unclashed from the front panel and stowed in their pocket quickly and easily. The pack also comprises a pocket at either side of the pack which is of sufficient size and shape to securely hold a water bottle, and also versatile enough to hold other objects of various sizes and shapes.

One of the advantages of the shoulder strap assembly of the present invention is that it can be adjusted at three different places to accommodate various body sizes. An additional advantage of the shoulder strap assembly is the inertial energy absorbing function provided by the elastic webbing at the bag end of the assembly. Another advantage of the strap assembly is the manner in which it pulls the pack not only up, but also snugly into the body.

The principal object of the invention, therefore, is to provide a novel and improved backpack which allows for greater flexibility and comfort in carrying and supporting loads.

Another object of the invention is to provide a conveniently stored easily accessible set of shoulder straps or suspenders which can be quickly attached or detached to provide a more comfortable means of carrying a load.

Still another object of the invention is to provide a pack which has a shock absorbing characteristic that reduces wear and fatigue on the wearer's body.

Yet another object of this invention is to provide a pack carried in the lumbar region of the back which is ergonomically designed to distribute the load between the user's shoulders and waist resulting in less strain on the body and over all greater comfort for the user.

Still another object of the invention is to provide a pack which is extremely adjustable in load location and shoulder harness position for a wide variety of body sizes and types, and which, once adjusted, maintains a consistent position on the wearer's body.

Further objectives are to provide a frameless or frame-carrying backpack which is simple, lightweight, versatile, rugged, comfortable to wear, allows quick easy access to water bottles, and is compact and decorative in appearance.

These and other objects and advantages of the present invention will no doubt become apparent upon a reading of the following descriptions and a study of the several figures of the drawing.

BRIEF DESCRIPTION OF THE DRAWING

A FIG. 1 is a ^{side}~~perspective~~ view showing the frameless version of the backpack of the present invention detachably held in place upon the back of a hiker by means of the waist encircling belt, and the shoulder straps in their operative positions;

FIG. 2 is a rear elevation of the pack itself showing the detachable ends of the shoulder straps disconnected from the waist-encircling belt and ready for insertion into the open pouch.

FIG. 3 is a sectional view from above showing the shoulder strap sections stowed in their pouch, portions of the latter having been broken away to more clearly reveal the interior construction.

Detailed Description Of The Preferred Embodiment(s)

As illustrated in FIG. 1, the invention comprises a frameless version of the backpack 10 which has attached to it's rear panel a set of shoulder straps 12 with clips 14 on the detachable end, a pouch 16 for carrying the shoulder straps, and a waist-encircling belt 18.

The bag-forming portion of the pack is more or less conventional comprising a front panel 20, a rear panel 22, a top panel 24, and one panel forming the bottom 26 and sidewalls 28R and 28L, all made of heavy fabric and sewn together to form a top-opening receptacle or bag. A zippered opening 30 (FIG.2) extends across the rear panel 22 and along both sidewalls 28R & 28L. A small flap 32 with one part 34 of a two-part fastener attached to it, for example by stitching, provides closure means for the pouch 16 which has the other part 36 of the fastener attached to it. In the particular form shown, this fastener comprises one of the "loop-and-pile" type although other two-part fasteners could be substituted therefore.

Each sidewall 28R & 28L also includes a pocket 38 with a drawstring closure 40 which can be used to hold water-bottles or any number of varied objects such as sunglasses, or scarves. While these pockets add substantially to the utilitarian value of the pack they form no part of the present invention. As seen in FIGS. 1 and 2 belt 18 comprises two sections 42R and 42L, which are substantially identical in construction and function. It should be mentioned that the designations "R" and "L" referring respectively to "right" and "left" have been used to refer to the pack as seen in elevation in FIG. 2, as the wearer would see it with his or her back to the pack. Thus the belt section 42L will be on the wearer's left side as shown. Each section of the belt 42R and 42L is comprised of several parts. Attached, for example by stitching, to the lower, side corner of the front panel is a waist belt strap 44 which is constructed of a wide piece of heavy nylon webbing having at it's terminus a "D" ring 46. Where the strap 44 attaches to the front panel 20 one half of a two part fastener 14A is also attached, for example by stitching, to the front panel 20. In the particular form shown, this fastener comprises one of the "quick-release" buckle type although other two-part fasteners could be substituted therefore. This fastener 14A forms the attachment

point for the shoulder strap assembly 12 which has at its terminus the other half of the two part fastener 14B. Sewn to the terminus end of the belt strap 42L is a narrow piece of nylon webbing 48 whose free end passes through an adjustable buckle 50 which is attached, for example by stitching, to the top, side corner of the front panel 20. Another piece of wide nylon webbing 52 is attached to the "D" ring 46 and the free end of the strap passes through one half of a two part adjustable buckle 54 of the quick release type.

Looking at FIGS. 1 and 2 it will be seen that the adjustable shoulder strap assembly 12 comprises ten parts. The front connector belts 56, which in the preferred embodiment are made of nylon webbing, have one half 14B of a two part quick release buckle at their terminus for attachment to the other half 14A of the quick release buckle which is attached, for example by sewing, to the front panel 20 of the bag forming portion of the pack. The other end of the nylon webbing 56 passes through an adjustable buckle 58 which is attached, for example by stitching, to the shoulder pad 60. The shoulder pads 60 have a foam core and a stitched nylon cover with adjustable buckles 58 & 62 attached, for example by stitching, to each end. The shoulder pads 60 are connected to a crossover strap divider 64 by a length of nylon webbing 66 one end of which is attached, for example by stitching, to the crossover strap divider 64 and the other end passes through the adjustable buckle 62 at the rear facing end of the shoulder pad. The two front strap sub-assemblies join together at the crossover strap divider 64 which is connected to a vertical support member 68 which is made of an elastic material and is longitudinally adjustable, for example, with a slider bar 70. In the preferred embodiment the rear shock absorbing vertical support member 68 is made of heavy duty elastic, but it is contemplated that other means, such as rubber, springs, or automatically retracting spring-loaded spools for example, could be substituted without substantially affecting the function of the design. The rear vertical support member 68 is attached at one end, for example by stitching, at the middle of a piece of nylon webbing 72 both ends of which are fastened, for example by stitching, to the rear panel 10. When the straps are in their operational deployment mode additional closure means for the pouch 16 is provided by a two part fastener 74. In the particular form shown this fastener comprises one of the "loop and pile" type although other two part fasteners could be substituted therefore. All materials and attachment means in the above mentioned parts are described in terms of their preferred embodiments, and it is realized that some or all of these specifics could be changed without substantially altering the design or function of the invention.

In their operative position the suspenders 12 ^{see 5/1} pass over the wearer's shoulders and the one half of the adjustable buckle 14B at the free-remote ends of the suspenders attach ~~in front of the wearer~~ to the other half of the adjustable buckle 14A. The buckle 14 in the particular form shown comprises the common "quick-release" type although other types of fasteners could be substituted therefore without substantially altering the functional aspects of the invention.

FIG. 3 shows the suspenders 12 in their pouch 16 where they are stored when not in use. The pouch 16 is in the form of a small envelope with an opening at the top, a flap 32 (not shown in this view) for closure and a two part fastener of the loop and pile type 34 & 36 (also not shown) for securing the flap 32 to the pouch 16. The length and width of the envelope is selected such that the entire suspender assembly will easily fold-up and be confined therein as shown in FIG. 3.

It is apparent from the foregoing that a novel and unobvious pack has been provided which allows for a high degree of versatility in configuring the manner in which it is employed as well as allowing for quick and easy adjustment to fit a wide variety of bodies. This pack fills a previously unmet need of allowing people to carry heavier loads in a highly stable manner with a hitherto unknown degree of comfort while maintaining an excellent, unencumbered range of movement, and an upper back which is free to respire freely.

While this invention has been described in terms of a few preferred embodiments, it is contemplated that persons reading the preceding descriptions and studying the drawing will realize various alterations, permutations and modifications thereof. It is therefore intended that the following appended claims be interpreted as including all such alterations, permutations and modifications as fall within the true spirit and scope of the present invention.